Arizona Educational Technology Plan
Adding the Sixth "C"
to the Economic Picture[1]

March, 2002

Arizona Department of Education
Jaime Molera, Superintendent of Public Instruction
Jane Hull, Governor

***Copper, Cattle, Cotton, Citrus, Climate**
and now CHILDREN

[1] The plan itself is modeled on the SouthEast Initiatives Regional Technology in Education Consortium (SEIR*TEC), Feb 2002 Logic Map for planning and the document strives to parallel that design.

Vision

The vision of the Department of Education for Arizona K-12 students is that they will use educational technology appropriately to develop strategies for solving problems, enhance their access to information, collect data, analyze data, increase productivity, produce creative work, communicate ideas, improve learning, and enhance their workforce skills. Students will interact with information in a dynamic process rather than just as static sets of facts appearing on a printed page. Included in this vision are the foundational concepts that teachers will appropriately assess student progress through the use of educational technology, and that school and district administrations will use technology in all aspects of school management. Commitments from government, university, district, community and private resources will be coordinated to ensure this vision remains a reality for Arizona students.

Mission

The State of Arizona's Department of Education Technology mission is to ensure the academic achievement of every student and to guide the development and implementation of technology to support that achievement across the state.

Connections

The United States Department of Education has adopted a Strategic Plan for 2002-2007. Statements from that document, and other federal publications, appear in this Arizona Technology Plan in italics. *"The ultimate objective of any educational enterprise is to improve student achievement so that individuals may contribute to our democracy, economy, and communities and live their own American dreams. Improving student achievement is hard. It requires meaningful change in the way educators do their work. It requires new structures, new tools and new knowledge. But more than anything, to boost student achievement, to leave no child behind, we must change the culture of the education system.* Further, this Arizona Technology Plan supports Secretary Paige's Priorities, specifically:

> Long-term Research Study (What are the effective conditions for technology to improve student achievement and instruction?),
> eLearning (What policies, laws, and regulations must be changed to accommodate virtual high schools, cyber charter schools, and online learning opportunities?),
> On-line assessment, and
> Data driven decision-making

Executive Summary

To implement the most reasonable plan when there has been a dramatic downturn in the economy is difficult. However that is when it is critical to plan carefully when attempting to implement technology. Arizona is a state that is currently funding education at a national low, is producing students testing at the lowest levels, and is demonstrating a poor record of retention in schools at all levels. However, this is certainly NOT an indication of the heart and will of the citizens. Citizen action has passed into law a number of funding directives and Accountability Measures designed to support public education. The State of Arizona, along with the educational community is committed to achieving national standards of excellence by creating standards, benchmarks, and support systems at the state level to insure that our students succeed. Improving academic achievement for all students is paramount for the state. Policies and mandates are in place to serve as the foundation for success of this plan. The Academic Standards in Arizona, supported by the Student Accountability measures are rigorous and yet attainable.

To this end, this Technology Plan blends many separate "grass roots" efforts to provide a level of excellence to our youth. Over the last 20 years or more educators, parents, business and industry leaders and the legislature, working sometimes alone and sometimes in concert, have tried to develop a cohesive plan of action related to education and technology. As these efforts were reviewed, it became immediately evident that all were targeting the same goals, the same populations and often used the same timeline and methods. Therefore, a coordinated effort was needed.[2]. The ultimate goal of this project, therefore, is to develop a comprehensive technology plan that, like the goals of the federal government, will make sure that No Child Is Left Behind.

The goals of the plan are:

Goal 1: Improve student academic achievement through the use of technology in elementary and secondary schools **with a target of fully integrating technology into the academic curriculum by December, 2006**.

Goal 2: Ensure that quality teachers, staff and administrators are involved in Arizona educational institutions and that they are proficient in the use and integration of technology through Professional Development**.**

Goal 3: Ensure that all K-12 educational institutions have the capacity, infrastructure, staffing, and equipment to meet academic and business needs for effective and efficient operations.

Goal 4: Ensure that all K-12 institutions will be positively involved in collaborations and partnerships which are supportive of technology use and integration

Goal 5: Ensure that all K-12 resources are available for all students (regardless of race, ethnicity, income, geographical location, or disability) to become technologically literate by the end of eighth grade and achieve their academic potential.

[2] A complete list of Plan Design participants is found in Appendix A

Goal 6: Develop a continuous process of evaluation and accountability for the use of Educational Technology as a teaching/learning tool, measurement and analysis tool for student achievement and fiscal management tool.

Goal 7: Develop a schema of current and future funding requirements to support the Arizona State Technology Plan.

There are seven specific goals in this plan that address not only the needs of Arizona as they have been identified by the planning groups and legislature, but also those brought by the citizens of the state through propositions. The premise behind every goal is that they are "continually moving targets" and that, unlike some subjects, technology does not remain static. Nor, can a technology plan be "done" except for a brief moment in time. Funding will always be a problem with a plan that is constantly evolving and a variety of funding sources will, over time, need to be identified and utilized to bring the plan to fruition.

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Elements of the Plan

A. Plan History and Design

By the end of the 20th Century, Arizona stakeholders had determined that technology should play a vital role in the education of our children. Unfortunately not all children had equal opportunities or access to technology. To remedy these inequities, representatives from a group of schools filed suit for equal funding and support in all Arizona Schools. The consortium of schools won their suit and the Arizona School Facilities Board was implemented to address the inequities in funding. The Board was charged with bringing all schools to a uniform set of physical standards of facilities and equipment. The State Legislature appropriated funding and the School Facilities Board has been working to address inequities across the state. To address inequities in access to technology, the Board has authorized the purchase of thousands of computer systems across the state. To insure the proper use of this equipment, the Board is working with Arizona School Services through Educational Technology (ASSET) to create professional development opportunities for Arizona's educators.

During 2001-2002, a group of business and industry leaders in the state funded a project to develop a framework for technology integration in Arizona K-12 and establish a "roadmap" for consistency and coherence in implementation. Coordinated by the Center for Research on Education in Science, Mathematics, Engineering and Technology (CRESMET), this consortium of educators and business leaders has developed a framework for technology development and integration. This framework includes recommendations for responsibility – resources that have made tentative commitment to support the framework– to complete the design.

In another initiative, the Arizona Technology in Education Alliance (AzTEA), a statewide professional group, revisited the Technology Standards component of the Educational Academic Standards for Arizona. Working under the direction of AzTEA members, a large group of constituents from around the state revised the standards to align them with a set of nationally accepted standards developed by the International Society for Technology in Education. The revised standards brought together and solidified a number of efforts and provided a starting point for the Technology Plan. It is the goal of the Department of Education to routinely review the technology standards, along with this Technology plan, to ensure that both are continuously adapting to the ever changing technology landscape.

The following principles guided the development of this plan.

The state of Arizona must assist every student in crossing the digital divide by ensuring that he/she is technologically literate by the time they complete the eighth grade Technology is no longer the path to future success for Arizona children—it is the path to current success. If used appropriately, research shows that technology enriches the learning environment leading to better student performance (Achieving Academic Excellence). Therefore, educational technology can:

- allow learning to occur in ways not possible otherwise;
- be a means for improving learning in all subjects;
- expand students' creative abilities;

- promote students' taking responsibility for their own learning;
- positively impact at-risk student populations;
- promote students' interaction with a larger community (e.g., discussions directly with experts, with other students working on the same or similar projects, etc.), and
- give students experience with modern workplace tools.

In short, technology, when implemented appropriately, has great potential to give Arizona students an enhanced learning environment. As an additional benefit, Arizona children will be exposed to and utilize technology that will better prepare them to enter today's society and economy as active participants.

Currently, many Arizona educators are using available educational technology at their school sites and/or districts as a tool to create learning environments for children that guide them into the 21st century. These technology rich environments are a result of a variety of opportunities available to teachers, including individual exploration, professional development, mentoring and coaching, college/university coursework, and other personal growth opportunities. In addition, some teachers have been supported with additional hardware, software, training, and professional development in the area of educational technology by becoming a part of larger private industry, federal, district and state funded programs.

Teachers who have embraced the integration of educational technology find that, as additional hardware, software, and peripherals become part of their classroom environment, a profound change of pedagogy is possible and, indeed, necessary. Therefore, one purpose of this state educational technology plan is to provide teachers with the resources and the environment that will allow them to change their pedagogy and their classroom management techniques. For example, as the current paradigm changes, teacher-centered classrooms are less prevalent, being replaced by more student-centered environments where students are actively engaged in the learning process and are given choices to personalize their learning. The teacher's role becomes one of emphasizing facilitation and guidance. As facilitator in the classroom environment, a teacher helps empower students to reach their full potential using a variety of tools, strategies, and learning modalities.

In a student-centered classroom, students have opportunities and choices regarding their learning styles and preferred method of interaction. You might see a teacher instructing a small group of students on how to collect, analyze, and interpret data through the use of a spreadsheet and then electronically graph the results. Another group might be utilizing search strategies to gather information on the Internet, communicating with e-pals (electronic pen pals) in Australia or experts at NASA. Individual students might be using various peripherals and incorporating them into multimedia projects. A pair of students interested in a unique way to capture information for a report might be creating video using digital editing tools. In another area of the room, an individual who wished to work alone might be talking to an expert online about photosynthesis or collecting real data through the use of online resources.

In all of these technology rich situations, teachers have redefined students' roles as learners by developing a shared vision where students can make meaningful connections across disciplines, express themselves creatively, think critically, and be empowered to realize their full potential.

These teachers have also created a new model of their own role in a student's education. A teacher's role is no longer one of the sole sources of factual information. Instead, teachers have become facilitators of the learning process sharing their passion for their subject and wisdom of the discipline rather than being mere purveyors of facts and figures.

However, education that integrates technology into the curriculum, even if it results in improved student achievement is, meaningless if all of Arizona's students do not have access to that technology. The significant enhancement to teaching and learning afforded by resources available on the Internet is lost if schools do not have the infrastructure necessary to deliver broadband voice, video, text and graphic data to adequate multimedia computers available in all classrooms. Insufficient numbers of computers distributed in classrooms, even given adequate Internet connectivity and computing power is as educationally irresponsible in the 21st Century as classrooms with insufficient numbers of textbooks were in the 20th Century.

The national Strategic Plan states in unambiguous language the measurable goals and objectives the Department intends to achieve. It creates the base of an accountability system for this agency, as it works to imbue accountability throughout the nation's education system. Thus, achievement of both professional development and student achievement goals relies upon the creation of a networking infrastructure, provision of adequate numbers of powerful computers in every classroom, and sufficient accountability. This is even more crucial in the remote areas of Arizona where community resources are insufficient to provide students the opportunities that more affluent students in the more dense population centers may enjoy in their homes.

Finally, to blindly continue practices without evidence of progress, growth and improvement is neither wise nor appropriate. Accountability in ensuring use of Best Practices, in determining and supporting progress in student achievement and reporting to the citizens related to the effective and efficient use of resources becomes critical. The state will continue to establish policies, processes and procedures that ensure districts account for all resources in a systematic and efficient manner. Student progress will be tracked, analyzed, and reported to promote student achievement.

B. Key Issues

Relationship of the Technology Plan with Superintendent Molera's State Initiatives and Goals of the Arizona Department of Education

Soon after taking office, Superintendent of Public Education Jaime A. Molera outlined an accountability program that is the framework for all education in Arizona K-12 schools. Called "Leading Education through the Accountability and Notification System, or Arizona LEARNS, Superintendent Molera's framework relies on central accountability-ensuring that all students have the skills and knowledge to succeed. The key components of Arizona LEARNS include:

- Ensuring that all students are being taught Arizona's Academic Standards through Curriculum and Instructional affidavits required of schools (*Achieving Academic Excellence by aligning advanced technology with challenging State Standards*).
- Providing fair and accurate measurement of school performance, permitting educators, the State Board of Education and the Department of Education to take action on behalf of students (*Effective and through measurement of achievement and progress year to year*).
- Underscoring the need to focus on school improvement with Department of Education support for teachers, governing board members, administers and parents. (*Innovative delivery strategies and strategies for parental involvement*)
- Implementing clear rewards and sanctions for schools that do not take action on behalf of their students.

The LEARNS initiatives are summarized as: K-3 Reading, School Accountability and Student Assessment. All three are heavily linked or even dependent on a consistent and reliable system of technology connecting the state "seamlessly" with knowledgeable users.

Relationship of the Technology Plan with Arizona's Students First (School Facilities Board project)

Arizona's state funded Students FIRST program has, since 1999, made groundbreaking strides in improving access to adequate computing. Initially, Students FIRST provided 36,000 multimedia Internet ready computers to ensure an 8:1 student-computer ratio in every one of Arizona's 228 public school districts. Many computers are already in place that connect to a local area network (LAN) within a LEA. Therefore, the second phase of the statewide educational technology initiative will connect every district to ADE's Network. The intention is to have every school in every district connected via a wide area network (WAN) with a district aggregation point that is then connected to the Internet with a broadband connection that allows transmission and reception of voice, video, text and graphic data.

Cox Business services, in cooperation with the School Facilities Board is creating "The Education Desktop" using an application service provider (ASP) model available to every public school at no charge through June 2005. The ASP will deliver and manage software titles from a central location to over 900,000 users statewide via the Internet. By August 2002, the ASP will

host school and teacher websites and provide e-mail services for staff and students.

Student Academic Information System (SAIS)-compliant student management systems will be offered as a premium (LEA pay) option. LEAs will also have access to over 250 educational titles, (i.e., content, courseware, reference materials), and communications software Because these resources will be available over the Internet, access to students, staff, parents, and teachers can be from school or home. Students will be able to access their own work and the software from the ASP which the school district is using from any place they have access to the Internet over the entire twelve years of their education in Arizona. The advantage of this in a highly mobile society is obvious.

As cutting edge as these Students First[3] achievements are, they are the beginning, not the end, of meeting a continuing challenge. Given the constant flux and lightening speed with which technology information systems are changing, this State Plan, covering all aspects of educational technology including provisions for assessment, is necessary. The national priorities include increasing access to technology for all students and teachers. This cannot be done without the technology itself in place in sufficient quantity, quality and support (maintenance, personnel and infrastructure) to make it happen.

Relation of the Technology Plan to Arizona State Technology Standards

In 2000 the Arizona State Board of Education adopted a revised set of technology standards for grades K-12. The Revision Committee analyzed current research on technology skills important to business and industry as well as national standards and preexisting state standards. With the goal of creating standards that "help students live, learn and work successfully and responsibly in an increasingly complex, technology-driven society," the Revision Committee designed a set of educational technology standards for Arizona. Aligned closely with the standards created by the International Society of Technology in Education (ISTE), the Arizona standards encompass a deep understanding of learning potential. The standards define technology as the application of tools to solve problems that extend human potential for the benefit of society. The standards are as follows:

Standard 1: Fundamental Operations and Concepts

> Students understand the operations and functions of technology systems and are proficient in the use of technology.

Standard 2: Social, Ethical and Human Issues

> Students understand the social, ethical and human issues related to using technology in their daily lives and demonstrate responsible use of technology systems, information and software.

Standard 3: Technology Productivity Tools

> Students use technology tools to enhance learning, to increase productivity and creativity and to construct technology-enhanced models, prepare publications and produce other

[3] Student's First is limited to supporting only non-charter public school. The standards created are voluntary for charter, private and parochial schools.

creative works.

Standard 4: Technology Communications Tools

Building on productivity tools, students will collaborate, publish, and interact with peers, experts and other audiences using telecommunications and media.

Standard 5: Technology Research Tools

Students utilize technology-based research tools to locate and collect information pertinent to the task, as well as evaluate and analyze information from a variety of sources.

Standard 6: Technology as a Tool for Problem Solving and Decision-Making

Students use technology to make and support decisions in the process of solving real world problems.

All of the Technology Standards are cross-referenced to the other Arizona Academic Standards to support the concept of integration and relevance.

C. Goals and Objectives of the Arizona Educational Technology Plan

Arizona is challenged with the goal of ubiquitous educational technology infusion in the K-12 system as well as an effective and efficient investment of public and private funds and resources. Of course, the ultimate goal of any K-12 educational technology plan is to provide the resources and processes necessary for enabling students to meet the education standards. Thus, students making reasonable progress in meeting these standards will become the measure of accountability. [4] *Ultimately we must use advanced technology to improve student academic achievement, aligned with challenging State standards. To this end, we encourage the establishment or expansion of initiatives (including those involving public-private partnerships) that are designed to increase access to technology, particularly in schools served by "high-need local educational agencies. Further, to assist…in the acquisition, development, interconnection, implementation, improvement, and maintenance of an effective educational technology infrastructure in a manner that expands access of technology to students and teachers.*

The program toward universal access and use of technology brings with it a new set of challenges. As Students First and the ASP deployment is completed and implementation takes effect, the impact on the resources will explode. While the bandwidth today is exciting and the access is comfortable, this will not remain the case. This plan encourages a review of the Internet service provider (ISP) systems used by LEAs in the state to improve service. Currently many LEA's are using the Universities as their ISP providers, but the connections they provide may not be suitable for voice, video text and graphics (unless upgraded). Arizona is fortunate in having a full "set" of ambitious and challenging Academic Standards for Student Achievement[5] along with a criterion referenced assessment instrument (AIMS) aligned to the Language and Math standards. Thus, the ultimate accountability is that students make reasonable progress in meeting these standards. The Arizona Stakeholders who worked on this plan emphasized that there are three specific areas must be directly addressed:

- **Maintain currency of the Plan** *to support a comprehensive system that effectively uses technology in elementary and secondary schools to improve student academic achievement. This also parallels the purpose of supporting the development and use of electronic networks and other innovative methods, such as distance learning, to provide specialized or rigorous courses or curricula to students who would not otherwise have access to such information, particularly to those in geographically isolated regions.*
- **Monitor progress in implementation** *to support a rigorous evaluation of programs funded under the Ed Tech Act, particularly regarding the impact of these programs on student academic achievement and ensure that the results are widely accessible through electronic means. Additionally to support initiatives that enable school personnel and administrators to integrate technology effectively into curriculum and instruction that are aligned with State standards, through such means as high-quality professional development programs.*

[4] A parallel is drawn between the Arizona goals and the stated purposes of the national Ed Tech program. National purposes are in italics.
[5] http://www.ade.state.az.us/state_tests_acad_stds.asp

- **Monitor student progress in educational technology use** *to support local efforts to use technology to promote parent and family involvement in education and to enhance communication among students, parents and school personnel and to enhance ongoing professional development for teachers, principals, and administrators by providing constant access to training and updated research in teaching and learning through electronic means.*

Using the resources and information listed previously, focus groups consisting of K-12 administrators, teachers, parents, industry stakeholders and university faculty determined twelve key issues that should be included in a comprehensive state framework. Review of other state educational technology plans and interviews with state technology directors helped determine the corresponding benchmarks of these components. From these twelve key issues, we have distilled the following seven key goals for the State of Arizona.

Goal 1: Improve student academic achievement through the use of technology in elementary and secondary schools **with a target of fully integrating technology into the academic curriculum by December 2006**.

Goal 2: Ensure that quality teachers, staff and administrators are involved in Arizona educational institutions and that they are proficient in the use and integration of technology through professional development activities**.**

Goal 3: Ensure that all K-12 educational institutions have the capacity, infrastructure, staffing, and equipment to meet academic and business needs for effective and efficient operations.

Goal 4: Ensure that all K-12 institutions will be positively involved in collaborations and partnerships that are supportive of technology use and integration.

Goal 5: Ensure that all K-12 resources are available for all students, regardless of race, ethnicity, income, geographical location, or disability, to become technologically literate by the end of eighth grade and achieve their academic potential.

Goal 6: Develop a continuous process of evaluation and accountability for the use of Educational Technology as a teaching/learning tool, as measurement and analysis tool for student achievement and as a fiscal management tool.

Goal 7: Develop a schema of current and future funding requirements to support this Arizona State Technology Plan.

D. Arizona's Technology Environment

Planning into Practice identifies specific actions and strategies needed to develop a technology plan that will be successful. Among these are:

- **Provide high quality professional development for teachers and administrators.** Th**r**ough a variety of structures, the Department of Education has provided statewide support to both public and charter schools on technical issues through the Regional Training Centers (RTC). While these efforts were initially supportive of the student information system for accountability, it became evident that they also filled a need for support in other technical areas. In the eight months since the inception of TeacherLine (ASSET provided and funded through School Facilities Board), over 2,500 teachers have taken advantage of 700 fifteen-hour professional development modules. In other venues across Arizona, teachers have taken advantage of grants funded at the University of Arizona with Tucson Unified School District (COPI) and at Arizona State University-West with a consortium of districts. There are also two TICG, Technology Innovation Challenge Grants, Project Venture and Global Connections. For administrative support the Arizona K-12 Center has a Gates Foundation grant for Leadership Academies. These grants incorporate the best of research related to teaching/learning and technology. However, while there are many other efforts in place, but with 42,000 teachers (public and charter) and 3,000 administrators much still remains to be done.

- **Install, maintain, and upgrade technology infrastructure (access).** While the impetus may have come from a grass roots lawsuit, the end result of the "Students First" project (School Facilities Board) has been an equalizing of all schools with a standard of infrastructure, hardware, and now software. The state has the majority of all public school facilities approaching physical standards of health and safety as well as standards that support academic improvement. The School Facilities board has funded the installation of 34,000 multimedia, Internet capable, computers in public schools at a ratio of 8:1 and has a 100 megabyte connection to the desktop capable of being upgraded to 1 gigabyte over time.

  Additionally, federal dollars, through the Technology Literacy Challenge Fund, ensured basic connectivity for all public and charter schools in the state. This allowed reporting from district to state and streamlined services from state to district. Further, the emphasis on accountability from the state has resulted in all schools having a "report card" on line for the public's review. One of the benchmarks for this effort was to ensure interoperability of systems within the LEA and between LEAs and the state. Further, the intent of the standards and policies are to be able to maintain continuity of service rather than a continual cycle of obsolescence

- **Provide technical support to teachers and administers.** Though a variety of structures, the Department of Education has provided statewide support to both public and charter schools on technical issues through the Regional Training Centers (RTC). While these initially were supportive of the student information

system for accountability, they quickly filled a need for support in other technical areas. Many LEAs used grant, state and district funds to develop support systems for personnel in the form of hotlines and help desk systems. The School Facilities Board through the ASP (Arizona Service Providers) project is providing an email account and digital locker for every teacher and student in state - public and charter - with 10 megabyte per user storage (capable of a 12 year portfolio per student.

- **Align curriculum, assessment and technology use.**
  Arizona was among the first state to develop rigorous Academic Standards. Among those were standards for technology. While the Educational Technology standards are not scheduled for direct competency testing, the 2000 revision cross-referenced each competency and most performance objectives to the other Academic Standards. The state utilizes a mastery system of assessment that uses the Stanford 9 for language and math at grades 3, 5, 8 and 11 and will, following revisions, re-institute the state's assessment (AIMS) instrument that will also provide benchmarks for progress.

- **Identify/develop resources, e.g. model lessons and teaching strategies.**
  There are several examples within Arizona of identifying and sharing Best Practices research and results. Project Venture and Global Connections (K-12) are Technology Innovation Challenge Grants that focus on technology integration professional development. Both have models of professional development that can be easily replicated by schools throughout the state. Extensive evaluation data and tools are available through both projects. Another project called Preparing Tomorrow's Teachers to Use Technology (PT3), a US Department of Education grant, focuses on pre-service teachers, higher education faculty, and K-12 partnerships.

  A second approach to identifying resources and models has been the ASSET effort to provide on-line professional competency assessment (over 9,000 teachers have taken the MyCompass inventory of skills in the first eight (8) months of its existence in Arizona. This particular inventory also points the individual to sources of support and training for those areas indicating need. Further it has the capability of customizing across the state to take advantage of LEA developed resources that they want to distribute internally and share externally.

- **Monitor, evaluate and review progress of technology initiatives.**
  Historically built into every LEA technology plan was a system for reporting progress on technology initiatives. The Regional Training Center's and the Arizona Department of Education have had the responsibility for managing that function. This plan has as a major component an accountability measure that requires more structured and visible demonstration of progress and effort on the part of the LEAs. With the creation of an Arizona State Technology Advisory Board (initially created from the Framework writers through CRESMET) an oversight group is charged with ensuring steady and consistent implementation of the plan.

E. Goals, Objectives and Strategies with Accountability Measures

Goal 1: Improve student academic achievement through the use of technology in elementary and secondary schools with a target of fully integrating technology into the academic curriculum by December 2006.
The Department will work with states and districts to ensure that schools have access to student assessment data in order to inform school improvement strategies and to develop specific interventions for individual children.

Objective	Strategy	Accountability Measure
1.1 Ensure that all students have educational opportunities to achieve academic success (including constant and consistent improvement) through the use of proven strategies of teaching and learning (research-based successful practices).	**1.1.1** Develop dissemination channels for reaching all K-12 personnel with the latest in teaching/learning strategies supported by research-based instructional methods and practices. (Best Practices).	**1.1.1.1** Number of current and continuing dissemination channels. Number of web-based and collegial sharing techniques of research-based practices.
	1.1.2 Continue to review, revise and refine the Arizona Academic Standards through annual or bi-annual (every 2 years) academic review of the standards, including analysis and recommendations for Accountability Measures.	**1.1.2.1** Completion of Technology Standards revision by December 2003. **1.1.2.2** Technology Standards for Students are brought to the State Board of Education to reflect the changes in the field and the progress in implementation and curricular integration.
	1.1.3 Convene a statewide taskforce to develop a systematic document or device to demonstrate integration of technology skills and objectives with other academic standards of achievement.	**1.1.3.1** Completion of a concrete document or device that is shared within the state including the target date of December 2006.

	1.1.4 Provide encouragement and training to promote LEA development of web-based learning for K-12 personnel**.**	**1.1.4.1** Number of the documents or devises. **1.1.4.2** Number of accesses by personnel and students to web-based learning acknowledged by the state.
	1.1.5 Fund training in the use of Internet-based data disaggregation tools for schools, district, and state education agencies.	**1.1.5.1** Number of trainings given.
	1.1.6 Ensure that "failing" schools or those with highest numbers of percentages of children in poverty receive assistance in applying for technology resources to support increased achievement.	**1.1.6.1** Number of schools with highest percentages of children in poverty or designated as "failing" under Title 1 receive individual that receive support in writing plans and getting funding.
	1.1.7 Use distance learning for students to improve achievement both through "traditional" settings and for at-home or alternative location opportunities.	**1.1.7.1** Amount of increase in funding of distance learning **1.1.7.2** Number of academic credits granted.
	1.1.8 Develop policy and procedure to support funding for student use of distance learning in a K-12 environment.	**1.1.8.1** Funding provided for distance learning credit for students (virtual environments).
1.2 Ensure that each Arizona school has a plan for meeting the Technology Education Standards of the Arizona Academic Standards.	**1.2.1** Provide all LEA's with access to quality resources, support systems and training to support the Technology Education Standards.	**1.2.1** Number of District level Governing Boards who approve Technology Plans (or revision less than 2 years old) that adopt the Technology Education Standards and place curricula emphasis on their inclusion in instructional time.

		1.2.2 Number of school level Technology Plans that support the District's objectives but may have even more local nuances.
	1.2.2 Ensure that "failing" schools or those with highest numbers of percentages of children in poverty get assistance in writing thoughtful and productive technology plans.	**1.2.2.1** Number of schools with highest percentages of children in poverty or designated as "failing" under Title 1 that receive individual support in writing plans.
1.3 Encourage innovative practices to will lead to increased student achievement, especially supporting the early reading initiative[6].	**1.3.1** Provide incentives (bonus points) for LEAs inside and outside the formula system to use the competitive grant application process to try new approaches in schools with low achievement.	**1.3.1.1** Rubric scores of grant applications that provide points for innovation related to reading achievement.
	1.3.2 Determine a minimum funding pattern to be supportive of quality innovation including the need to share and disseminate plans and results in a timely manner.	**1.3.2.1** The per/teacher cost of the most recently funded competitive grants deemed successful (ADE will calculate) and apply as a formula for minimum funding in competitive applications[7].
1.4 Provide access to available resources reflecting scientifically based research and related best practices focused on improving student achievement. [8].	**1.4.1** Assign the portal development task to a curriculum knowledgeable agency to create and maintain.	**1.4.1.1** Assignment of Portal development by December 2003
	1.4.2 Create a portal on a totally accessible site that has categorized hyperlinks to available resources.	**1.4.2.1** Publishing of the Portal for general use by December 2004.

[6] *The Department will test the relative effectiveness and impact of strategies relating to adolescent literacy, mathematics and science achievement, career-related academies, education technology, career and technical education, dual or concurrent enrollment in postsecondary education, career awareness and career development.*

[7] This is NOT intended to buy a "package" and plop it into place and expect it to make a difference.

[8] *The Department will create and maintain an online database of quality research on topics relevant to educational practice, as determined in part by the fast response surveys. Users will be able to ascertain the quantity, quality, relevance, and direction of the evidence with respect to a wide and expanding range of topic.*

	1.4.3 Prominently post best practice models on both the ASP portal and on the ADE websites.	**1.4.3.1** Regular review of the Portal
	1.4.4 Use electronic data collection for inventory data by contracting with agency to incorporate existing data into existing survey devices (MyCompass) and tie into application and reporting processes.	**1.4.4.1** Number of LEA's who use electronic reporting on standardized devices.
	1.4.5 Expand student research options to include school libraries connected and sharing data and services with public and corporate agencies.	**1.4.5.1** Students and staff demonstrate expanded use of resources beyond the walls of the physical LEA
	1.4.6 Fund data collection of existing shared services projects in the state.	**1.4.6.1** Number of projects and reports generated.
	1.4.7 Expand student access to quality reference and research materials through joint projects between libraries.	**1.4.671** Access by students across agency boundaries to library materials.
	1.4.8 Ensure reliable connectivity both within LEA’s and to the internet.	**1.4.8.1** Number of LEAs who have better than 99% connectivity

Goal 2: Ensure that quality teachers, staff and administrators are involved in Arizona educational institutions and that they are proficient in the use and integration of technology through professional development activities.
(NOTE: at least 25% of any federal funds received will be allocated to Professional Development).

Objective	Strategy	Accountability Measure
2.1 All teachers and staff will have incentive (both intrinsic and extrinsic) to become competent in the technology skills.	**2.1.1** Provide documentation of learning for all participation that can be used for re-certification or pay incentives.	**2.1.1.1** Number of on-line assessment instruments allows the state to view and demonstrate progress in skills.
	2.1.2 Acknowledge on an annual basis, in tangible format, those LEAs who have supported professional development in the area of technology and achievement**.**	**2.1.2.1** Number of LEAs who receive verification of documented progress.
	2.1.3 Develop recognition systems that encourage teachers to remain in the profession and develop long-term relationships with schools and students.	**2.1.3.1** Composite and comparative data using on-line resources such as MyCompass.
2.2 Provide on-line and other distance learning opportunities as well as one-on-one options for all K-12 personnel.	**2.2.1** Establish a portfolio of learning opportunities.	**2.2.1.1** Development of directory of opportunities with emphasis on availability to individuals outside of a limited LEA by December 2003
	2.2.2 Ensure that all K-12 personnel have access before and after working hours to appropriate connected technologies to take on-line and other distance learning options**.**	**2.2.2.1** Number of accesses and options.

	2.2.3 Create an information alert systems that reach every individual in the K-12 environment making them aware of the options available and how to access these.	**2.2.3.1** Development of the system by December 2003 **2.2.3.2** Charted measures of usage over time.
	2.2.4 Provide technical assistance for both skills and integration to LEA's requesting assistance**.**	**2.2.4.1** Number of assistance efforts and summary report of LEA evaluations of service
	2.2.5 Provide encouragement and training to promote LEA development of web-based learning for K-12 personnel for certification.	**2.2.5.1** Number records of the State Board of Education for approval requests and of granting requests related to on-line and distance learning opportunities. **2.2.5.2** Number of randomly sampled teacher certification renewal documents for evidence that distance learning or on-line offerings are being utilized**.**
2.3 Provide a competency self-assessment instrument with recommendations for professional development for all K-12 personnel as an on-line option (Based on NETS – MyCompass currently available in Arizona).	**2.3.1** Ensure that all K-12 personnel have access before and after working hours to appropriate connected technologies to take an on-line self-assessment.	**2.3.1.1** Independent audit to ensure actual availability, awareness of potential users and user satisfaction (a random sample is suggested).
	2.3.2 Create information alert systems that reach every individual in the K-12 environment that the options are available.	**2.3.2.1** Development of alert system by November 2002.
	2.3.3 Correlate the self-assessment to a matrix of learning options that complement needs or desires.	**2.3.3.1** Numbers and responses to self-assessment instruments (being scrupulous to maintain privacy of participants)

2.4. Ensure that all Pre-service training for teachers and administrators includes competencies in technology use and integration to meet the Professional NETS (ISTE).	**2.4.1** Disseminate the NETS competencies to all pre-service training institutions in Arizona.	**2.4.1.1** Number of state certification and re-certification standards that reflect the desire for technology competency in new personnel.
2.5 Encourage innovative practices to support teacher professional development and retention (especially in rural and inner city areas) through competitive grants process[9].	**2.5.1** Provide incentives (bonus points) for LEAs inside and outside the formula system to encourage professional development leading to job satisfaction and retention.	**2.5.1.1** Rubric scores of grant applications that provide points for innovation related to retention and on-site professional development.
	2.5.2 Determine a minimum funding pattern to be supportive of quality innovation including the need to share and disseminate plans and results in a timely manner.	**2.5.2.1** The per/teacher cost of the most recently funded competitive grants deemed successful (ADE will calculate) and apply as a formula for minimum funding in competitive applications
2.6 Develop specific professional development packages to be delivered to Governing Board members and other supervisory LEA formats that give background on the research connecting student achievement and the use of technology.	**2.6.1** Create and field test professional development packages that can be locally delivered.	**2.6.1.1** Number of packages delivered. **2.6.1.2** Evaluations from participants.

[9] We will encourage school districts to develop and implement new incentive and compensation systems to attract and retain teachers of mathematics and science.

Goal 3: Ensure that all K-12 educational institutions have the capacity, infrastructure, staffing, and equipment to meet academic and business needs for effective and efficient operations.

Objective	Strategy	Accountability Measure
3.1 All facilities will meet standards of physical structure for health and safety and effective educational use	**3.1.1** Continue "Students First" initiatives for maintenance of existing facilities including funding for hardware and software replacement.	**3.1.1.1** Results of independent audit indicating LEA's are at standards. **3.1.1.2** Number of LEA plans and purchases take into account the need for standardization to ensure interoperability and consistency of purpose[10]**.**
3.2 All facilities will meet minimum standards of technology infrastructure and hardware placement**.**	**3.2.1** Continue advisory board type activities to determine what "minimum" should be – update annually.	**3.2.1.1** Results of independent audit indicating LEA's are at standards. **3.2.1.2** Number of school site councils and similar agencies minutes that indicate they have been active in the facilities review process.
	3.2.2 Ensure that the digital divide is eliminated for student by exploring alternative connectivity (PDA, wireless, etc) and programs for technology in student's homes.	**3.2.2.1** Study of need and recommendations to appropriate agencies/ personnel.

[10] *Create an efficient and integrated delivery system…use new technologies and integrate systems by eliminating, consolidating and redesigning … legacy systems to improve service, cut costs and reduce the improper payments…*

3.3 Establish policies and procedures whereby the infrastructure for broadband Internet connectivity delivered to public school classrooms is regularly upgraded to provide capacity commensurate with state-of-the-art information systems delivery.[11]	**3.3.1** SFB places proactive pressure on carrier service providers to extend the backbone into every geo-graphic area in the state.	**3.3.1.1** Percent/ number of connectivity goals set for state, districts and schools met annually.
3.4 Ensure continued refinement of the data collection systems with the state's educational institutions in terms of functions, capacity, software, user-friendly characteristics and support.	**3.4.1** Continually review current operations, with feedback from the end users, for policies, procedures or systems that need refinement.	**3.4.1.1** Number of reports that are completed on time, correct and analysis done within the established time limits.
3.5 Ensure continued maintenance support of existing technology and networking.	**3.5.1** Develop policies, procedures, funding and personnel or contracts to deliver 100% reliability.	**3.5.1.1** Number of LEAs with 100% up-time on all LEA and state technology resources.
3.6 Ensure uninterrupted ISP service to LEAs with sufficient capacity to enable both academic and administrative efficiency.	**3.6.1** Consider the potential of having ADE serve as ISP for the LEAs of the state.	**3.6.1.1** Report of the task force formed to review the potential and make recommendations.

[11] Sustainability is a critical factor in the philosophy of the Framework and this Technology Plan

Goal 4: Ensure that all K-12 institutions will be positively involved in collaboration and partnerships that are supportive of technology use and curricular integration.
States and districts will be required to publish report cards that provide school performance information to parents. Children trapped in failing or unsafe schools will have the opportunity to attend better public schools….

Objective	Strategy	Accountability Measure
4.1 All facilities are available to the community as appropriate to support life long learning.	**4.1.1** Encourage K-6 to involve parents in family technology events hosted at the LEA.	**4.1.1.1** Number of invitations, flyers, memorabilia of events
		4.1.1.2 Number of policies that support collaborations and partnerships.
	4.1.2 Provide public support for business and industry that encourages employee participation in educational efforts (volunteers, etc)	**4.1.2.1** Amount of public acknowledgment by business and industry that indicate policies that supports employee participation.
	4.1.3 Emphasize in site councils (legislative mandate for all public schools) that technology is an "academic" skill as well as a life skill basic.	**4.1.3.1** Minutes (public records) indicate that technology is a curricular topic at least twice during the year.
		4.1.3.2 Amount of stakeholder involvement from the parental sector increases in planning and oversight LEA groups.
4.2 Establish Adult Literacy Connections for every K-12 site.	**4.2.1** Involve local agencies to determine the extent and type of adult literacy support needed.	**4.21.1** Documents, minutes of meetings, logs of contact efforts and results.

	4.2.2 Develop LEA supported volunteer training programs that incorporate literacy training for the volunteers with support for the LEA's populations. (Reference OASIS – intergenerational literacy volunteer project)	**4.2.2.1** Number of such programs and reports of results.
4.3 Encourage innovative practices to support equity through competitive grants process.	**4.3.1** Provide incentives (bonus points) for LEAs inside and outside the formula system to encourage creative planning.	**4.3.1.1** Rubric scores of grant applications that provide points for innovation related to collaboration, partnerships and parental involvement (including adult literacy).
	4.3.2 Determine a minimum funding pattern that is supportive of quality innovation including the need to share and disseminate plans and results in a timely manner.	**4.3.2.1** The per/teacher cost of the most recently funded competitive grants deemed successful (ADE will calculate) and apply as a formula for minimum funding in competitive applications.
4.4 Ensure statewide communication between all factors.	**4.4.1** Create catalogs of programs and resources **4.4.2** Create communication forums for teacher-to-teacher, teacher-to-university faculty, and teacher-to-business communities. **4.4.3** Create forums for discussions between groups with similar interests or common topics	**4.4.4/2/3.1** Number of catalogs, lists and forums.

4.5 Explore the use of technology to create safer school environments without infringing on human rights.	**4.5.1** Research and develop proposals for ensuring student and staff physical safety through the use of technology (beyond electronic filtering of networks)[12].	**4.5.1.1** Number of reports delivered to State Board of Education and/or disseminated to districts for consideration or School Facility Board funding.

[12] *...will periodically update and validate the ... current risk assessment and security plan and that certification and accreditation are in place (for electronic business transmissions)*

Goal 5: Ensure that all K-12 resources are available for all students, regardless of race, ethnicity, income, geographical location, or disability, so they can become technologically literate by the end of eighth grade and achieve their academic potential.
Effective strategies for students with disabilities and English language learners will be given special attention.

Objective	Strategy	Accountability Measure
5.1 Disseminate information about assistive technology in general, and about the use of technology to meet individual needs of students with disabilities.	**5.1.1** Utilize existing agencies within the state (both public and non-profit) to identify databases of information available.	**5.1.1.1** Number of databases identified and documentation of compiled resource listing.
5.2 Provide technical assistance with assistive technology products.	**5.2.1** Utilize existing agencies within the state (both public and non-profit) to provide technical assistance with emphasis on group involvement such as conferences, workshops and focus groups.	**5.2.1.1** Year 1, schedule of efforts and involvement records. Year 2 – Number of special needs students in the academic performance assessment database that indicate signs of increased achievement. **5.2.1.2** Number of assistance efforts and summary report of LEA evaluations of service.
5.3 Facilitate assistive technology assessments	**5.3.1** Provide LEA's with support systems or contacts to develop assistive technology assessments for students.	**5.5.3.1** Number of parent complaints about non-support for special education students (reduced from the 2002 level).
5.4 Encourage innovative practices to support equity through a competitive grants process.	**5.4.1** Provide incentives (bonus points) for LEAs inside and outside the formula system to encourage creative planning. **5.4.2** Determine a minimum funding pattern to be supportive of quality innovation including the need to share and disseminate plans and results in a timely manner.	**5.4.1.1** Rubric scores of grant applications that provide points for innovation related to reading achievement. **5.4.2.1** The per/teacher cost of the most recently funded competitive grants deemed successful (ADE will calculate) and apply as a formula for minimum funding in competitive applications.

5.5 All LEAs have policies and procedures that encourage equal access to technology and support without regard to subject or grade level, but rely of purpose and effectiveness as criteria.	**5.5.1** Provide sample policies and procedures and examples of successful placement and use to LEAs.	**5.5.1.1** Number of examples and documentation for LEA of successful placements (i.e. increased achievement as a resulting factor).
5.6 All LEA's with English Language Learners use technology to increase English Proficiency.	**5.6.1** Develop a database of effective ELL software and technology-related activities.	**5.6.1.1** Number of ELL students attaining proficiency in English.

Goal 6: Develop a continuous process of evaluation and accountability for the use of Educational Technology as teaching/learning tool, as measurement and analysis tool for student achievement and as a fiscal management tool. ***Information technology initiatives will dramatically reduce the data collection burden on state and local officials by seamlessly collecting and disseminating performance information. Increased flexibility will be a core principle incorporated in all legislative proposals.***

Objective	Strategy	Accountability Measure
6.1 Disseminate information about current and proposed accountability devises, techniques and programs.	**6.1.1** Use web technology, in-person contact and written notices to maintain open communication about the use of technology in assessment.	**6.1.1.1** Amount of use of technology to collect, compile, analyze, and disseminate evaluation and progress result.
6.2 Develop methods of allowing students to take tests and measurements on-line to facilitate both their involvement and the compilation of results information.	**6.2.1** Work within the Department of Education and with vendors to develop economical techniques for using the inherent resources in the school in the form of networked computers to "take" tests.	**6.2.1.1** Number of student assessments reported to the state on-line and in real-time.
6.3 Continue to refine the current state student achievement-measuring schema (SAIS) to reflect the need for accurate and timely assessment of learning combined with professional development to use that data productively for students.	**6.3.1** Analyze the results of programs used in 2001 and 2002 and make appropriate adjustments to the system.	**6.3.1.1** Error free reporting and direct correlation between standards and skills and competencies tested.
	6.3.2 Provide on-going, hands on professional development for administrators and teachers in assessment evaluation and appropriate responses.	**6.3.2.1** Achievement results indicating improvement of one year growth for every calendar year of instruction. **6.3.2.2** Number of parents and citizens who indicate satisfaction with the educational system in survey evidence.

6.4 Create a management information using electronic resources to improve service to the state.	**6.4.1** Continue to refine the electronic reporting system by ensuring reliable connections and stable software[13].	**6.4.1.1** Using 2002 RTC trouble calls as base line, number of reported problems.
6.5 Ensure that administrative needs are addressed and solutions developed.	**6.5.1** Use existing inventories and reports to determine a priority of administrative needs in the state.	**6.5.1.1** Needs assessment from all LEAs.
	6.5.2 compile the needs assessment at the state level and determine ideal and immediate solutions.	**6.5.2.1** Compilation and analysis of needs assessment with solutions.
	6.5.3 Implement solutions suggested by 6.5.2.	**6.5.3.1** Funding and delivery of solutions.
6.6 Promote research to identify most effective uses of technology.	**6.6.1** Quantify student uses by type and relate the usage to achievement.	**6.6.1.1** Use ASP usage and school-reported usage to compare with achievement.

[13] *Manage information technology resources, using e-gov, to improve service for the state.*

Goal 7: Develop a schema of current and future financing requirements to support this Arizona State Technology Plan.
The national strategic plan focuses on performance. It states in unambiguous language the measurable goals and objectives the department intends to achieve. It creates the base of an accountability system for this agency, as it works to imbue accountability throughout the nation's education system.

Objective	Strategy	Accountability Measure
7.1 Develop policy and procedure related to maintenance of hardware, software, infrastructure and security.	**7.1.1** Use research industry standards of maintenance costs and relate them to Arizona settings. [14]	**7.1.1.1** Number of policies and standards that are adopted and published.
7.2 Develop current and future funding requirements to support the plan implementation and provide for keeping the technology current including infrastructure.	**7.2.1** Identify current funding sources and projects and create avenues of exploration for new, consistent and dependable funding streams.	**7.2.1.1** Number of funding sources identified that will support the needs and programs of the plan.
	7.2.2 Develop guidelines that preclude using federal funds to supplant current funding	**7.2.2.1** National reports (Where Arizona emerges in the top 15 states for funding and supporting education K-12.)
7.3 Develop a funding formula and procedures that are equitable and reliable to maintain and support continual improvement in the technology "system" within the LEAs (including maintaining a strong leadership presence at the state level).	**7.3.1** Continue to maintain a positive working relationship with the legislature, business and industry.	**7.3.1.1** Amount of continuous, reliable funding.
	7.3.2 SFB advocates at the state government level to lobby for continued funding of technology.	**7.3.2.1** Amount of continuous, reliable funding.
7.4 ADM formula funding provided by Arizona Department of Ed for distance learning credit for students.	**7.4.1** Distance learning per student funding is part of budget formulary from the Arizona Department of Education.	**7.4.1.1** Availability of funds confirmed and used.

[14] *The Department will implement productivity improvements through implementation of e-gov applications, customer relationship management, and supply chain management and knowledge management best practices, while at the same time protecting the privacy of our customers.*

F. Strategies for Financing Technology

State-level financial support for educational technology

Source	Amount	Period available	Status	Purpose and Restrictions
ADE Regional Training Centers	*$1,600,000*	*one-year funding*	*4 Centers established and operating*	*Professional development, technical assistance and support to LEAs statewide*
Legislature- Prop 301	*$445,000,000 estimated in year 1* *Will raise statewide sales tax by six-tenths of one percent.*	*Annual, beginning FY02 for 10 years*	*Approved by voters in November, 2000*	Approximately 85% of revenues generated are dedicated to K-12; directed to classrooms with an estimated increase of $350 per pupil.
ASSET – AZ School Services Through Educational Technology	*$234,000*	*Annual*	*On-going*	*Provides educational programming and training to K-12 via public television and hands-on workshops*
ASSET – MyCompass; Classroom Connect – Connected University, PBS TeacherLine; United Streaming, TECHshare			*On-going*	*Educator assessment tool on strengths and needs tied to professional development opportunities and classroom resources collected to standards and achievement s*
E-Rate – FCC funding	*$44,000,000 approximate*	*Annual*	*On-going*	*Educational discount on telecommunication services*
Intel Teach to the Future Donations: Hewlett Packard equipment and Microsoft software ($95,000); Bill & Melinda Gates Foundation Leadership Grants ($1,282,600), Intell chip project referenced 3/2002	*$4,006,478*	*Three-years*	*On-going*	*Professional Development Services to cadre of 206 Master Teachers and 5,000 educators statewide.*

Source	Amount	Period available	Status	Purpose and Restrictions
Microsoft Teacher Training Partnership	*$1,000,000* in programs and teacher training support materials annually	*>From 1990 to present renewable annual competitive contract*	*On-going*	*Project provides programs and materials which supports teacher training in 5 established training centers, includes RTCs*
Students First-Quest	*$45,000,000*	*From 2000 to 7/1/2002*	*On-going*	*Project provides connectivity, firewall, and filtering to all classroom computers statewide*
School Facilities Board/Cox/Learning Stations ASP Project	*$27,000,000*	*From 2001 to 2006*	*Beginning*	*Provides over 250 software programs via the Internet to educators, students statewide from home or school*
Ed Tech block grants both formula driven and competitive				
StRUT – community based training and recycled resources for schools				

G. Timeline of Implementation

Goal, Objective & Strategy (strategy abbreviated for timeline)	Year 1 – 2002-2003 Task % done	Year 2 – 2003-2004 Task % done	Year 3 – 2004-2005 Task % done	Year 4 – 2005-2006 Task % done
1.1.1 dissemination channels	Create 15%	Continue 40%	Continue 70%	Continue 90%
1.1.2 Academic Standards	Review 3 ea 100%	Review 3 ea including Technology 100%	Review 3 ea 100%	Review 3 ea 100%
1.1.3 Taskforce for systematic integration	Create 25%	Publish 25%	Train 25%	Evaluate and Revise/ Train 20%
1.1.4 promote web-based professional development	Create 25%	Create and Implement 50%	Create and Implement 75%	Create and Implement 100%
1.1.5 technical assistance in writing	Provide 40%	Provide60%	Provide 90%	Provide 100%
1.1.6 distance learning for students	Design 15%	Certify 45%	Implement 80%	Continue 90%
1.2.1 Access to resource	Provide 20%	Provide 40%	Provide 70%	Provide 90%
1.2.2 technical assistance in writing	Provide 40%	Provide 60%	Provide 90%	Provide 100%
1.3.1 innovative competitive grants	Provide 60 %	Provide 70%	Provide 80%	Provide 100%
1.3.2 determine funding pattern needed	Immediate 60%	Review 75%	Review 95%	Review 100%
1.4.1 assign task	Immediate 25%	Provide 50%	Provide 90%	Provide 100%
1.4.2	Provide 20%	Provide 40%	Provide 70%	Provide 90%
1.4.3 best practices posting create portal				
1.4.4 electronic data collection	Collect data 10%	Implement 30%	Continue 75%	Continue 90%
1.4.5 student resources and research	Collect data 10%	Implement 30%	Continue 75%	Continue 90%
1.4.6 fund the resources for research	Determine 10%	Process and allocate 20%	Purchase 70%	Continue 100%
1.4.7 student access	Design 10%	Fund and place 30%	Continue 80%	Continue 100%
1.4.8 connective	Review 10%	Fund and place 50%	Continue 70%	Continue 99%
2.1.1 document adult learning	Provide 20%	Provide 40%	Provide 70%	Provide 90%
2.1.2 acknowledge effort	Provide 20%	Provide 40%	Provide 70%	Provide 90%
2.1.3 encourage teacher retention	Provide 20%	Provide 40%	Provide 70%	Provide 90%
2.2.1 portfolio of learning opportunities	Provide 20%	Provide 40% and review	Provide 70%	Provide 90%
2.2.2 after-hours access	Provide 20%	Provide 40% and review	Provide 70%	Provide 90%
2.2.3 information alert system	Provide 40%	Provide 60%	Provide 90%	Provide 100%
2.2.4 technical assistance for integration	Provide 60 %	Provide 70%	Provide 80%	Provide 100%
2.2.5 promote LEA web-based learning	Provide 20%	Provide 40% and review	Provide 70%	Provide 90%
2.3.1 after-hours access self-assessment	Provide 20%	Provide 40% and review	Provide 70%	Provide 90%
Goal, Objective & Strategy	**Year 1 –**	**Year 2 –**	**Year 3 –**	**Year 4 –**

(strategy abbreviated for timeline)	2002-2003 Task % done	2003-2004 Task % done	2004-2005 Task % done	2005-2006 Task % done
2.3.2 alert system of options	Provide 20%	Provide 40% and review	Provide 70%	Provide 90%
2.3.3 self-assessment matrix of learning	Provide 40%	Provide 60%	Provide 80%	Provide 100%
2.4.1 disseminate NETS competencies	Immediate 60%	Review impact 60%	Modify if needed 80%	Modify if needed 100%
2.5.1 encourage competitive grant applications	Provide 60 %	Provide 70%	Provide 80%	Provide 100%
2.5.2 determine minimum funding	Immediate 60%	Review 75%	Review 95%	Review 100%
2.6.1 field test of governing board program	Immediate 15%	Provide 30%	Provide 60%	Provide 90%
3.1.1 continue facilities standards	Provide 60 %	Provide 70%	Provide 80%	Provide 100%
3.2.1 continue advisory board activities	Provide 60 %	Provide 70%	Provide 80%	Provide 100%
3.2.2 eliminate the digital divide	Provide 10%	Provide 40%	Provide 80%	Provide 100%
3.3.1 proactive pressure	Provide 60 %	Provide 70%	Provide 80%	Provide 100%
3.4.1 review information gathering systems	Provide 60 %	Provide 70%	Provide 80%	Provide 100%
3.5.1 100% reliability operation of systems	Develop 15%	Provide 30%	Provide 80%	Provide 100%
3.6.1 ISP source of service	Explore 10%	Recommendation 20%	Funds if appropriate 80%	Provide 100%
4.1.1 facilities are available	Immediate 15%	Provide 30%	Provide 60%	Provide 90%
4.1.2 support business/ industry participation	Provide 40%	Provide 60%	Provide 80%	Provide 100%
4.1.3 site council involvement	Immediate 15%	Provide 30%	Provide 60%	Provide 90%
4.2.1 involve local agencies/ Adult Literacy	Immediate 15%	Provide 30%	Provide 60%	Provide 90%
4.2.2 volunteer training	Immediate 15%	Provide 30%	Provide 60%	Provide 90%
4.3.1 incentives for creative planning	Immediate 60%	Review 75%	Review 95%	Review 100%
4.3.2 determine minimum funding	Immediate 60%	Review 75%	Review 95%	Review 100%
4.4.1 create catalogs of resources	Provide 40%	Provide 60%	Provide 80%	Provide 100%
4.4.2 listservs for teacher-to-teacher	Immediate 15%	Provide 30%	Provide 60%	Provide 90%
4.4.3 forums for discussions	Provide 40%	Provide 60%	Provide 80%	Provide 100%
4.5.1 technology to support safety	Develop 40%	Publish 50%	Act on 80%	Continue 100%

Goal, Objective & Strategy (strategy abbreviated for timeline)	Year 1 – 2002-2003 Task % done	Year 2 - 2003-2004 Task % done	Year 3 – 2004-2005 Task % done	Year 4 – 2005-2006 Task % done
5.1.1 policies and procedures for sharing	Immediate 15%	Provide 30%	Provide 60%	Provide 90%
5.2.1 incentives for creative	Immediate 60%	Review 75%	Review 95%	Review 100%
5.2.2 determine minimum funding	Immediate 60%	Review 75%	Review 95%	Review 100%
5.4.1 utilize existing agencies – training	Immediate 60%	Review 75%	Review 95%	Review 100%
5.5.1 provide support – assistive tech	Provide 40%	Provide 60%	Provide 80%	Provide 100%
5.3.1 Facilitate assistive technology	Research 20%	Provide 60%	Provide 80%	Provide 100%
5.6.1 database of ELL software & technology	Research 10%	Publish 50%	Continue 80%	Continue 100%
6.1.1 accountability communication	Immediate 35%	Continue 60%	Continue 85%	Continue 100%
6.2.1 students use technology for assessments	Research 20%	Design and Implement 40%	Provide 60%	Provide 85%
6.3.1 analyze results of programs 2001/2002	Immediate 35%	Revise 60%	Revise 80%	Revise 100%
6.3.2 professional development in assessment	Immediate 50%	Continue 80%	Continue 95%	Continue 98%
6.4.1 department electronic business function	Immediate 70%	Continue 85%	Continue 95%	Continue 99%
6.5.1 inventories to determine priority	Analysis 20%	Implement 100%		
6.5.2 compile needs assessments	Design 10%	Complete 100%		
6.5.3 provide administrative solutions statewide	Design 30%	Fund 50%	Implement 80%	Complete 100%
6.6.1 promote research	Immediate 10%	Continue 50%	Continue 5%	Continue 100%
7.1.1 industry standards of cost	Immediate 60%	Review 75%	Review 95%	Review 100%
7.2.1 funding sources	Immediate 60%	Review 75%	Review 95%	Review 100%
7.2.2 guidelines to prevent supplanting	Immediate 60%	Review 75%	Review 95%	Review 100%
7.3.1 positive working relationship	Immediate 60%	Review 75%	Review 95%	Review 100%
7.3.2 advocate for continuous funding	Immediate 60%	Review 75%	Review 95%	Review 100%
7.,4.1 funds for distance learning from ADM data	Study 10%	Budget 30%	Implement 70%	Continue 100%

H. Resources

One of the basic tenets of the Framework used to develop this plan is "Providing access to resources along with time and support to develop educational technology competency represents the most logical means by which to ensure effective curriculum integration." Further, all the partners listed in the Plan Participants section of this plan have indicated they consider themselves resources to the state. .Additionally groups that have profound support features and functions include:

ADE technical support and assistance, program monitoring, Troops to Teachers

Arizona School Facilities Board with the **ASP** project (Cox with a software package) and networking project (Quest contract) and Darcom for the Websense software and firewall

ASSET - TeacherLine, MyCompass

AzTEA – Best Practices, Technology Planning support and models, Professional Development

Cisco and Microsoft Networking Academies

COPI (PT3 grant) Robin Ward - rward@email.arizona.edu Co-Principle Researcher

E-rate – hardware, software, connectivity, personnel for support

K-12 Gates Grant, Dr. Patty Horne, Director – AZ K-12 Leadership Academies

Intel – Teach to the Future granting process.

Northern Arizona University and Arizona State University –West supporting on-line credit for TeacherLine courses.

Preparing Tomorrows Teachers to Use Technology PT3 - Universities

Project Venture http://www.creighton.k12.az.us/projectventure

Regional Training Centers – Flagstaff, Tempe, Tucson, San Simon

RTEC - Network of Regional Technology in Education Consortia – www.rtec.org - A wealth of help on technology in education.

- Appalachian
- High Plains
- Mid-Atlantic
- North Central
- Northeast & the Islands
- Northwest
- Pacific
- South Central
- Southeast

STRUT (donated reconditioned technology to schools)

I. Accountability and Evidence of Accomplishments

Arizona has a dual accountability system for student achievement underway. Annually students in grades 3, 5, 8 and 11 are given the Stanford 9 in Language and Math. These scores are provided for both the local institution and the public's review. Following the passage of the state proposition (common title: Proposition 301) there are penalties for institutions that do not provide for and achieve improvement in academic success for students who are not achieving. Further, the state has created, and is currently refining, an assessment schema that is directly correlated to the Academic Standards adopted by the State Board of Education. Again, there are ramifications for LEA's that do not take this directive seriously, including and up-to mandatory "taking over" of the LEA by the state to ensure academic excellent for students.

Over the last five years Arizona has used funding from E-rate and federal sources as well as local funding to develop infrastructure that also supports excellence in the administrative end of the education process. The interoperability standards were first set forth in the TIEDS document and now by the standards of the School Facilities board. All financial and account ting transactions are communicated and handled electronically. Further every LEA has a "report card" on-line that allows the public to view their academic success (or failure) related to state and national standards.

J. Approval and Acceptance Process

The approval and acceptance process of the 2002 Arizona State Technology Plan will include an open review by all stakeholders, especially those involved as representatives of various groups in the various planning initiatives. This review will take place over a very short timeframe by electronic dissemination and feedback.

The actual plan will be submitted to the Arizona State Board of Education for their April Board Meeting as part of the request for approval to submit the State's Request for the "Enhancing Education Through Technology Grant":.

Appendix A - Plan Participants

The following table represents only some of the many individuals that had direct influence on the development of this plan. At least 200 others where indirectly involved in proofreading, submitting ideas and feedback. The continuing role of these plan participants is formalized in the Arizona Department of Education's Technology Advisory Committee formed in February, 2002 with its core membership from the CRESMET Framework writing group. The Advisory Committee will meet on a regular basis to monitor the plan and its implementation.

Partnership for an Arizona Statewide Systemic Technology Initiative		**Business-Initiated Steering Committee for K-12 Technology (BISC) cont.**
Arizona Association of County School Superintendents		Judson, Eugene - Teacher Representative
Arizona Department of Education (ADE)		Kilroy, Kathryn - ASSET
Arizona Education Association (AEA)		Kinder, Peggy – WestEd
Arizona Governor's Office (AGO)		Lentz, Charles - Arizona Education Association
Arizona K-12 Center (AZK12)		Levy, Michael - CRESMET, ASU
Arizona Learning Technology Partnership (ALTP)		Marona, Kim – Qwest
Arizona Procurement Office (APO)		Mast, Suzi - Teacher Representative
Arizona School Administrators (ASA)		McDermott, Patricia - Teacher Representative
Arizona School Boards Association (ASBA)		McMurphy, Helene - NCS Pearson
Arizona School Facilities Board (SFB)		Middleton, James - Arizona State University
Arizona Schools Services through Educational Technology (ASSET)		Owen, Cecilia- Superintendent, Coconino County
Arizona Technology Educators Alliance (AzTEA)		Poplin, Cathy - Project Venture and AzTEA
Business-Initiated Steering Comm. for K-12 Tech. (BISC) ‡		Thompson, Scott - Arizona Department of Ed
Cisco Systems		Whiffen, Pam - Palo Verde Middle School
Cox Communications		
CRESMET, Arizona State University		**Plan Reviewers**
Government Information Technology Agency (GITA)		Regional Training Center personnel
Project Venture (PV)		AzTEA Board of Directors and officers
Qwest		Indiv. members of the Tech. Standards Comm.
WestEd		
Business-Initiated Steering Committee for K-12 Technology (BISC)		**Financial Contributors to Framework Development**
Brush, Jeannie - CRESMET, ASU		Honeywell
Brush, Thomas - Educational Psychology, ASU		Intel Corporation
Clark, Barbara – Motorola		Lansdale Semiconductor
Contreras, Panfilo - Arizona School Board Association		Motorola, Inc.
Eitel, Connie - Cox Communications		Qwest
Eslamieh, Chula - Arizona State University		Salt River Project
Esque, Shelly - Intel Corporation		The Boeing Company
Euen, Tricia - Maricopa Community Colleges		
Evans, D. L - .CRESMET Director, ASU		**Editors**
Geiger, Philip - School Facilities Board		Dr. Ruth Catalano
Gordon, Janita - Arizona State University		Dr. Chris Johnson, University of Arizona
Gyampoh, Hayford - Arizona Department of Education		Chris Castillo, Arizona State Dept. of Education
Holmes, Bill - Sr. Staff Asst. Pima County Super. of Schools		
Horn, Patty J - Arizona K-12 Center		
Johnson, Chris - University of Arizona		
Jolayemi, Elaine - Sunset School		

Appendix B -Summary of Stakeholders involved in plan design and development

There is a complete list of names, titles, addresses and telephone or email contact information for the majority of the persons who contributed to this plan. There are also minutes and executive summaries, web-sites or other media which summarize the meetings held to develop the agency's comprehensive technology plan. An "input and approval" review was done electronically March 14-17, 2002 reaching over 500 stakeholders. This technique will be standard as updates or revisions are considered over the life of the plan.

Parents	√ **Yes No**
Community leaders	√ **Yes No**
Representatives of libraries	√ **Yes No**
Business Leaders	√ **Yes No**
Students	√ **Yes No**
School library media specialists	√ **Yes No**
Teachers	√ **Yes No**
School administrators	√ **Yes No**
Adult literacy providers	√ **Yes No**

Appendix C - Websites in Support of Arizona's Technology Plan

Arizona Department of Education
- Technology Curriculum
  - http://www.ade.state.az.us/state_tests_acad_stds.asp
- Superintendent Molera's Press Releases
  - Feb 25 – Academic Standards
    - http://www.ade.state.az.us/services/pio/press-releases/2002/pr2-25-02.asp
  - Nov 26, 2001 – Accountability Program
    - http://www.ade.state.az.us/services/pio/press-releases/2001/pr11-26-01.asp
  - March 7, 2002 – Accountability Report
    - http://www.ade.state.az.us/services/pio/press-releases/2002/pr3-07-02.asp

Arizona School Facilities Board (standards for infrastructure, hardware and software)
- http://www.sfb.state.az.us/sfbmain/core_home.asp

Arizona Education and Technology Alliance (professional association)
- http://www.aztea.org

Arizona Educational Media Association (professional association)
- (Laughlin Conference serving northwest Arizona schools)

Arizona Association of School Business Officials
- http://www.asbointl.org/

Arizona K-12 Center – Administrative Grant
- http://www.sfb.state.az.us/sfb/sfbdoc/announcements/AzK12_brochure.pdf

COPI – reference to support for mentor model
- http://www.seattleschools.org/area/it/studies.xml

Research based results to be shared during the course of the plan's implementation
- http://www.ed.gov/nclb/research/

RTC – tech planning and support
- http://www.sansimon.k12.az.us/thech_info.htm

Regional Training Centers
- http://www.ade.state.az.us/rtc/

Evaluation and Research of Educational Technology -
http://www.ed.gov/technology/evaluation.html

SouthEast Initiatives Regional Technology in Education Consortium
http://www.seirtec.org/

ISTE – International Society for Technology in Education
http://www.iste.org

Appendix D - Goals Correlation: Arizona to U.S. Strategic Plan

U.S. Department of Education Plan Arizona "Objective" Reference

Goal One: Create a Culture of Achievement	
Obj. 1.1 Link federal education funding to accountability for results.	**All objectives and strategies have concrete Accountability Measures attached as well as - Goal 6: continuous process of evaluation and accountability related to technology.**
Obj.1.2 Increase flexibility and local control.	**1..2** ensure that each Arizona school has a plan for meeting the Technology Education Standards of the Arizona Academic Standards. **1.1.8** Develop policy and procedure to support funding for student use of distance learning in a K-12 environment.
Obj 1.3 Increase information and options for parents.	**4.1** All facilities are available to the public to support life-long learning**.** **4.2** Establish Adult Literacy Connections for every K-12 site**.** **4.3** Encourage innovative practices to support equity through competitive grants process**.** **4.4** Ensure statewide communication between all factors.
Obj. 1.4 encourages the use of scientifically based methods within federal education programs.	**1.4** create a portal on totally accessible site that has categorized hyperlinks to available resources that reflect scientifically based research and related best practices focused on improving student achievement. **1.1.8** Develop policy and procedure to support funding for student use of distance learning in a K-12 environment. **5.3** provide technical assistance with assistive technology products**.** **5.4** encourage innovative practices to support equity through competitive grants process.
Goal Two: Improve Student Achievement	**Arizona Goal 1–Improve Academic Achievement**
Obj. 2.1 Ensure that all students read on grade level by the third grade.	**1.1** Ensure that all students have educational opportunities to achieve academic success (including constant and consistent improvement) through the use of proven strategies of teaching and learning (research-based successful practices)**.**

	1.1.8 Develop policy and procedure to support funding for student use of distance learning in a K-12 environment. **4.2** Establish Adult Literacy Connections for every K-12 site**.** **5.1** Disseminate information about assistive technology in general, and about the use of technology to meet individual needs of students with disabilities **5.5** All LEAs have policy and procedure that encourage equal access to technology and support without regard to subject or grade level, but rely on purpose and effectiveness as criteria.
Obj. 2.2 Improve mathematics and science achievement for all students	**1.3** Encourage innovative practices that will lead to increased student achievement, especially supporting the early reading initiative**.** **1.1.8** Develop policy and procedure to support funding for student use of distance learning in a K-12 environment. **1.4** create a portal on a totally accessible site which has categorized hyperlinks to available resources reflecting scientifically based research and related best practices focused on improving student achievement.
Obj 2.3 Improve the performance of all high school students	**1.4** Create a portal on a totally accessible site which has categorized hyperlinks to available resources reflecting scientifically based research and related best practices focused on improving student achievement**.** **1.1.8** Develop policy and procedure to support funding for student use of distance learning in a K-12 environment **5.5** All LEAs have policy and procedure that encourage equal access to technology and support without regard to subject or grade level, but rely on purpose and effectiveness as criteria.
Obj. 2.4 Improve teacher and principal quality.	**Arizona Goal 2 – Ensure quality teachers, staff and administrators** **2.1** All teachers and staff will have incentive (both intrinsic and extrinsic) to become competent in the technology skills**.** **2.2** Provide on-line and other distance learning opportunities as well as one-on-one options for all K-12 personnel**.**

	2.3 Provide a competency self-assessment instrument with recommendations for professional development for all K-12 personnel as an on-line option**.** **2.4** Ensure that all pre-service training for teachers and administrators includes competencies in technology use and integration to meet the professional NETS**.** **2.5** Encourage innovative practices to support teacher professional development and retention (especially in rural and inner city areas) through competitive grants processes**.**
Goal Three: Develop Safe Schools and Strong Character.	
Obj. 3.1 Ensure that our nation's schools are safe and drug-free and that students are free of alcohol, tobacco and other drugs.	**4.1** All facilities are available to community as appropriate to support lifelong learning.
Obj. 3.2 Promote strong character and citizenship among our nation's youth.	**Arizona Technology Standards for Students: Standard 2 – Social, Legal and Ethical Issues**
Goal Four: Transform Education into an Evidence-based Field	
Obj. 4.1 Raise the quality of research funded or conducted by the Department	**1.4** Create a portal on a totally accessible site that has categorized hyperlinks to available resources that reflect scientifically based research and related best practices focused on improving student achievement. **4.4** ensure statewide communication between all factors.
Obj. 4.2 Increase the relevance of our research in order to meet the needs of our customers.	**1.3** Encourage innovative practices that will lead to increased student achievement (especially supporting the early reading initiative)**.** **1.4** Create a portal on a totally accessible site that has categorized hyperlinks to available resources that reflect scientifically based research and related best practices focused on improving student achievement**.** **2.5** Encourage innovative practices to support teacher professional development and retention (especially in rural and inner city areas) through competitive grants processes. **4.4** Ensure statewide communication between all factors.
Goal Five: Enhance the Quality of and Access to Postsecondary and Adult Education	**Not directly applicable to this technology plan**
Goal Six: Establish Management Excellence throughout the D.o.E	**Arizona Goal 3: "capacity, infrastructure, staffing and equipment to meet needs"**

Obj. 6.1 Develop and maintain financial integrity and management and internal controls.	**3.1** All facilities will meet standards of physical structure for health and safety and effective educational use. **3.2** All facilities will meet minimum standards of technology infrastructure and hardware placement**.** **3.3** Establish policies and procedures whereby the infrastructure for broadband Internet connectivity delivered to public school classrooms is regularly upgraded to provide capacity commensurate with state-of-the-art information systems delivery**.** **3.5** Develop policies, procedures, funding and personnel to deliver 100% reliability. **6.1** Disseminate information about current and proposed accountability devises, techniques and programs. **7.1** Develop policy and procedure related to maintenance of hardware, software, infrastructure and security**.** **7.2** Define current and future funding requirements to support the plan implementation and provide for keeping the technology current including infrastructure**.** **7.3** Develop funding formula and procedures that are equitable and reliable to maintain and support continual improvement in the technology "system" within the LEAs (including maintaining a strong leadership presence at the state level).
Obj. 6.2 Improve the strategic management of the Department's human capital.	**4.2** Establish Adult Literacy Connections for every K-12 site**.** **4.4** Ensure statewide communication between all factors.
Obj. 6.3 Manage information technology resources, using e-gov, to improve service for our customers and partners.	**1.4** Create a portal on a totally accessible site that has categorized hyperlinks to available resources that reflect scientifically based research and related best practices focused on improving student achievement. **3.4** Ensure continued refinement of the data collection systems with the state's educational institutions in terms of functions, capacity, software, user-friendly characteristics and support**.** **3.5** Develop policies, procedures, funding and personnel to deliver 100% reliability.

	4.4 Ensure statewide communication between all factors. **6.1** Disseminate information about current and proposed accountability devises, techniques and programs. **6.2** Develop methods of allowing students to take tests and measurements on-line to facilitate both their involvement and the compilation of results information**.** **6.3** Continue to refine the current state student achievement-measuring schema (SAIS) to reflect the need for accurate and timely assessment of learning combined with professional development to use that data productively for students.
Obj. 6.4 Modernize the Student Financial Assistance programs and reduce their high-risk status.	**3.4** Ensure continued refinement of the data collection systems with the state's educational institutions in terms of functions, capacity, software, user-friendly characteristics and support**.** **6.3** Continue to refine the current state student achievement-measuring schema (SAIS) to reflect the need for accurate and timely assessment of learning combined with professional development to use that data productively for students**.** **7.1** Develop policy and procedure related to maintenance of hardware, software, infrastructure and security**.** **7.2** Define current and future funding requirements to support the plan implementation and provide for keeping the technology current including infrastructure**.** **7.3** Develop funding formula and procedures that are equitable and reliable to maintain and support continual improvement in the technology "system" within the LEAs (including maintaining a strong leadership presence at the state level).
Obj. 6.5 Achieve budget and performance integration to link funding decisions to results.	**7.1** Develop policy and procedure related to maintenance of hardware, software, infrastructure and security. **7.2** Develop current and future funding requirements to support the plan implementation and provide for keeping the technology current including infrastructure.

	7.3 Develop a funding formula and procedures that are equitable and reliable to maintain and support continual improvement in the technology "system" within the LEAs (including maintaining a strong leadership presence at the state level). **7.4** ADM formula funding provided by Arizona Department of Ed for distance learning credit for students
Obj. 6.6 Leverage the contributions of community and faith-based organizations to increase the effectiveness of Department programs.	
Obj. 6.7 By becoming a high performance, customer-focused organization, earn the President's Quality Award.	

Appendix E - Glossary of Acronyms

ADE – Arizona Department of Education

AEMA – Arizona Educational Media Association

ASSET – Arizona School Services through Educational Technology

AZTEA – Arizona Technology in Education Alliance (an affiliate of ISTE)

CRESMET - Center for Research on Education in Science, Mathematics, Engineering and Technology

GITA - Government Information Technology Agency

ISTE – International Society of Technology Educators

NETS – National Educational Technology Standards, also
NETS for Teachers

RTC – Regional Training Centers

SAIS - Student Accountability and Information System

SFB – School Facilities Board, an Arizona agency